

The following supplement accompanies the article

Multidecadal trends in the nesting phenology of Pacific and Atlantic leatherback turtles are associated with population demography

Nathan J. Robinson^{1,*}, Sara E. Valentine², Pilar Santidrián Tomillo^{3,4}, Vincent S. Saba⁵, James R. Spotila⁶, Frank V. Paladino^{2,4}

¹ Department of Biological Science, Purdue University, West Lafayette, Indiana 47907, USA

² Department of Biology, Indiana University-Purdue University Fort Wayne, Fort Wayne, Indiana 46805, USA

³ Population Ecology Group, Institut Mediterrani d'Estudis Avançats, IMEDEA (CSIC-UIB), Miquel Marquès, 21, 07190 Esporles, Mallorca, Spain

⁴ The Leatherback Trust, Goldring-Gund Marine Biology Station, Playa Grande, Guanacaste, Costa Rica

⁵ National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center, c/o Geophysical Fluid Dynamics Laboratory, 201 Forrestal Road, Princeton University Forrestal Campus, Princeton, New Jersey 08540, USA

⁶ Department of Biology, Drexel University, Philadelphia, Pennsylvania 19104, USA

*Corresponding author: robinsn@purdue.edu

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Supplement. Presented here are (1) Akaike's Information Criterion values for each model comparing oceanographic conditions or population size of leatherback sea turtles *Dermochelys coriacea* to median nesting date (MND) or to the central tendency of the nesting season (CT_{ns}), (2) graphs showing multidecadal trends in local air temperatures and precipitation values at each of the study sites, and (3) a graph showing monthly patterns in local air temperature over the leatherback nesting season at Playa Grande.

Table S1. Akaike's Information Criterion (AIC) for each model comparing oceanographic conditions or population size of leatherback sea turtles *Dermochelys coriacea* to median nesting date (MND) or to the central tendency of the nesting season (CT_{ns}). AIC values are presented for models including only a single parameter (oceanographic conditions: before departure from the foraging area, during departure from the foraging area, during migration between foraging and nesting areas, and upon arrival at the nesting areas; or population size) and for models with 2 parameters (oceanographic conditions and population size). Lowest values for AIC denote the best model and are indicated with an asterisk (*). Nesting locations are Playa Grande, Costa Rica (Pacific Ocean), and Sandy Point, US Virgin Islands (Atlantic Ocean). MEI: Multivariate El Niño-Southern Oscillation index; NAO: North Atlantic Oscillation index; AMO: Atlantic Multidecadal Oscillation index

MND at Playa Grande (MEI)			MND at Sandy Point (NAO)			MND at Sandy Point (AMO)		
Model	AIC (single parameter model)	AIC (model including population size)	Model	AIC (single parameter model)	AIC (model including population size)	Model	AIC (single parameter model)	AIC (model including population size)
Before departure	121.47	111.04	Before departure	160.44	162.18	Before departure	160.58	162.17
Departure	121.20	109.92	Departure	156.69*	157.55	Departure	159.92	161.91
Migration	121.39	111.03	Migration	159.78	161.54	Migration	159.72	161.69
Arrival	121.36	111.01	Arrival	160.29	162.01	Arrival	158.14*	160.13
Combined	121.38	111.08	Combined	160.58	162.20	Combined	158.14*	160.21
Population size	109.08*		Population size	160.22	160.95	Population size	159.61	

CT _{ns} at Playa Grande (MEI)			CT _{ns} at Sandy Point (NAO)			CT _{ns} at Sandy Point (AMO)		
Model	AIC (single parameter model)	AIC (model including population size)	Model	AIC (single parameter model)	AIC (model including population size)	Model	AIC (single parameter model)	AIC (model including population size)
Before departure	48.47	46.45	Before departure	82.24	83.45	Before departure	85.64	84.98
Departure	47.62	45.99	Departure	79.54*	82.86	Departure	85.24	85.21
Migration	43.41*	43.45	Migration	83.54	84.28	Migration	85.14*	84.75
Arrival	44.91	43.76	Arrival	84.25	83.65	Arrival	85.78	85.69
Combined	46.13	44.62	Combined	83.55	82.41	Combined	85.69	84.59
Population size	44.99		Population size	84.21		Population size	84.58	

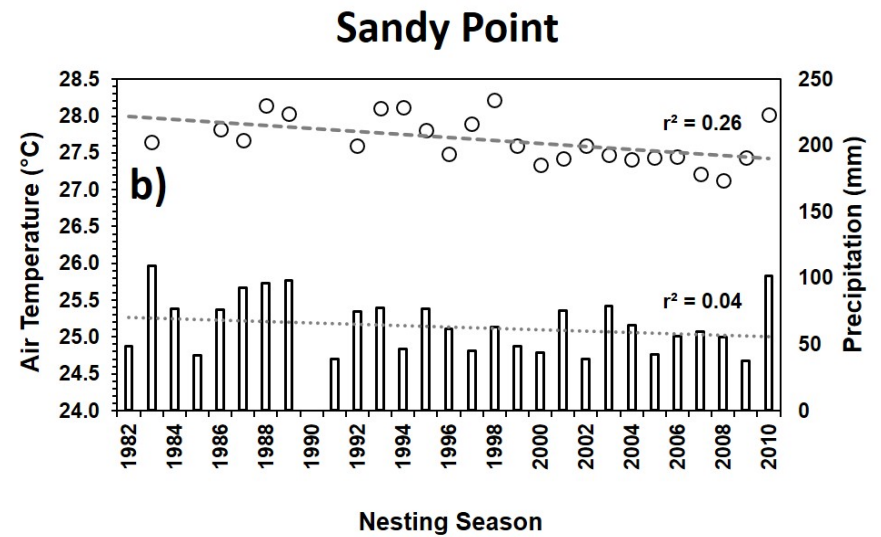
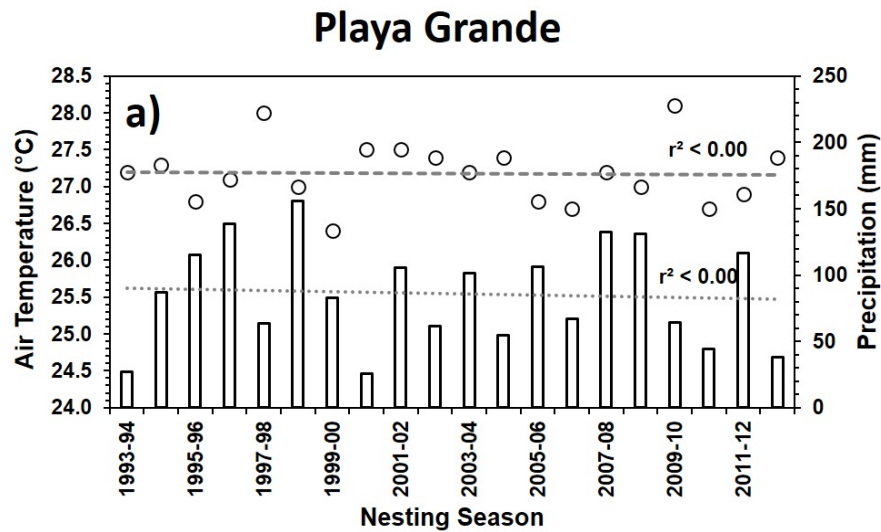


Fig. S1. Mean air temperature (dots) and total precipitation (bars) over the leatherback sea turtle *Dermochelys coriacea* nesting seasons at Playa Grande (October to March) and Sandy Point (March to August). The dashed and dotted lines represent linear least-squares trend-lines for mean air temperature and total precipitation, respectively. Data for Playa Grande were obtained from the Daniel Oduber Quiros International Airport, 44 km from the nesting beach. Data for Sandy Point were obtained from the Christiansted Hamilton Field Airport, 10 km from the nesting beach

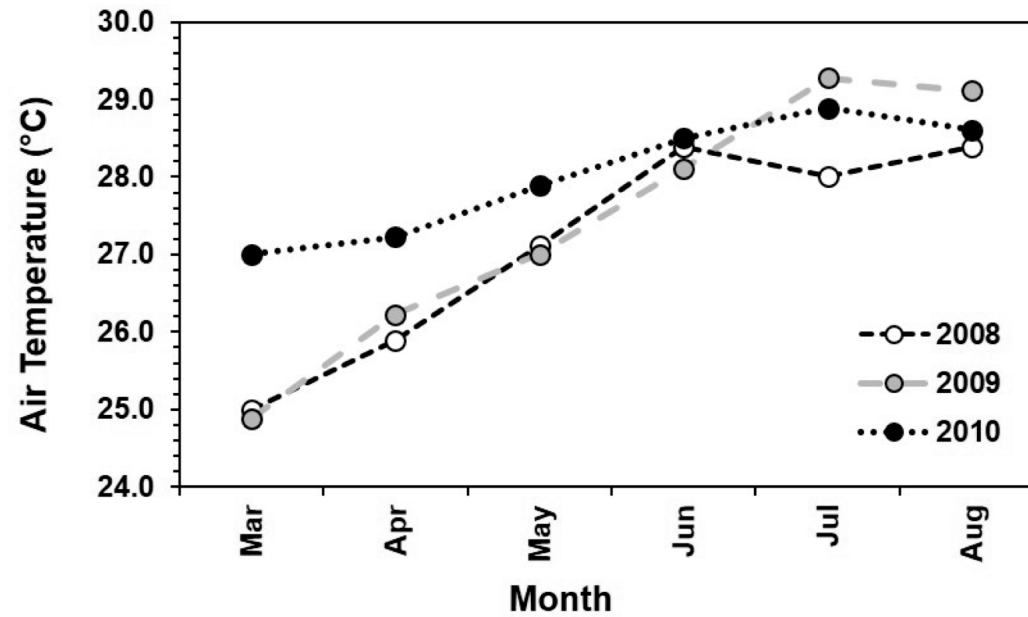


Fig. S2. Average monthly air temperatures from the Christiansted Hamilton Field Airport, 10 km from Sandy Point, during the leatherback sea turtle *Dermochelys coriacea* nesting season. Data are from 2008, 2009 and 2010